

# The FileMaker Report

A Newsletter For FileMaker™ Users

## Issue 29

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# FileMaker News & Notes

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By  
Joe Kroeger

- This issue of the newsletter is quite late. I apologise and hope we have not caused you an inconvenience. The newsletter remains in business (and will for a long time) even if it doesn't always seem like it. We'll probably have a few new issues quickly in a row, especially after FileMaker Pro arrives.

*New  
Facilities*

- Elk Horn Publishing has moved into a new, improved office. In conjunction with other changes, this means several nice things:
  - There will now be someone to answer the phone, at least most of the time, even when your editor is out.
  - There are more phone lines now so there will be fewer busy signals when you call.
  - There is now a dedicated FAX machine so you can FAX stuff to us.
  - Charge cards can now be accepted for subscriptions and renewals.

*New  
Address*

- The old PO Box address is still active and we are still showing it on the cover. Our new street address is:

**Elk Horn Publishing  
64A Penny Lane  
Watsonville, CA 95076 USA**

*New  
Phones*

- The new voice phone number is 408-761-5466. Please delete our old phone number from your records. The new FAX number is 408-761-5468.

*Template  
Catalog*

- Domestic US subscribers will soon be receiving (at long last!) a copy of the new template library catalog. I hope you like it. The US government puts up barriers against exporting templates. If we overcome them we may one day be able to sell templates to FileMaker users outside the US.

*FileMaker  
Pro*

- Delivery of the new FileMaker Pro upgrade has been a little delayed. In some ways this is a good sign: Claris is anxious to remove every bug they can find. My hope and expectation is that they'll be shipping it in August. The upgrade price for FileMaker Pro will evidently be about \$99. While it is true that Pro will be full of great goodies, especially for those of us who will use it every day, I think \$99 is nonetheless too much. If I hear of a way to buy the upgrade at a discount, I'll let you know.

- Article authors for The FileMaker Report are paid 10¢ per word. You won't get rich, but it can add up to a few nice bucks. Let me know if you would like to give it a try - I can even suggest some topics. Template and database authors for the Elk Horn Library are paid a royalty on each item sold, usually 50%. In addition to these payments, all our authors have their choice of any Library templates at half price.

**FMR**

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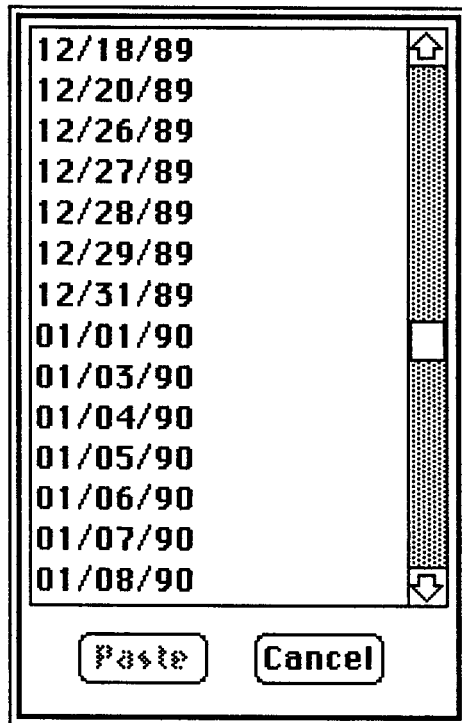
## More Exploration of FileMaker Pro

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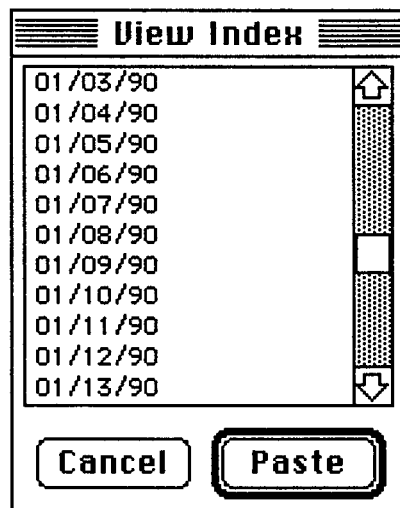
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By  
Joe Kroeger

□ "FileMaker Pro" is the long-awaited new version of FileMaker that will probably be on the way soon. While there have been some delays from the original schedule, I expect that we'll see the upgrade sometime in August. The latest pre-release version I have seen is much more stable and useable than just a month ago, so it is clear that real progress is being made. Pro includes many new and productive features that will improve the efficiency of users, enhance the overall effectiveness of the program and extend the range and complexity of problems that FileMaker can conquer. I predict you'll love it even at the high upgrade price of \$99.



The *FileMaker Report* began describing FileMaker Pro in issue #28 and will gradually increase the space devoted to it. We will also continue to publish articles describing universal tips, tools and techniques that can be used with either FileMaker Pro or FileMaker II. But eventually we expect that most all subscribers will convert to FileMaker Pro and the newsletter will do the same over time.



The old FileMaker II **View Index** dialog (leftmost figure) uses regular Chicago 12-point type and is a regular fixed box that can't be moved around the screen. The new FileMaker Pro **View Index** (rightmost figure) is a movable window that uses smaller characters. (The two figures are both shown full size for comparison.)

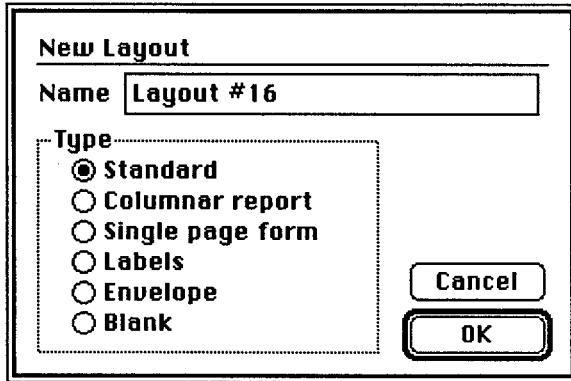
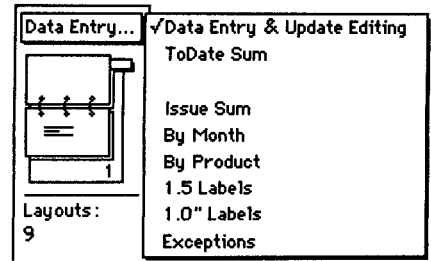
In spite of the smaller type size in the new version, fewer lines of information are shown because the window is quite a bit smaller. Even though it is indeed a window, it does not have some window characteristics: you can't resize it, you can't bring the main file window in front of it and you can't close the file until you first close the **View Index** window. It is not clear why Claris bothered to make it smaller. The repositioning capability is nice, and Pro graciously remembers where the window was last located, even when the file is closed and reopened.

The ability to name layouts is one of the great new features in Pro. A pop-up list of all layouts is positioned just above the (newly designed) book icon. This makes switching layouts very convenient and saves using scripts to move between them. The pop-up has a check-mark next to the active layout.

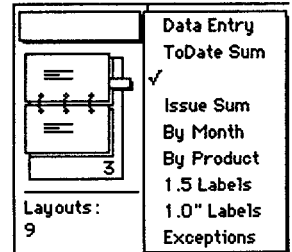
# More Pro

(continued)

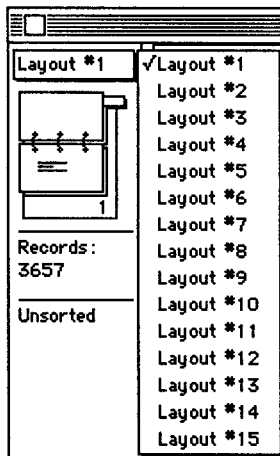
The currently-active layout is always shown above the book. The space available there for the name is only about a dozen characters long. The pop-up list adjusts to accommodate longer layout names (see figure to the right) that are then truncated to fit in the indicator box above the book.



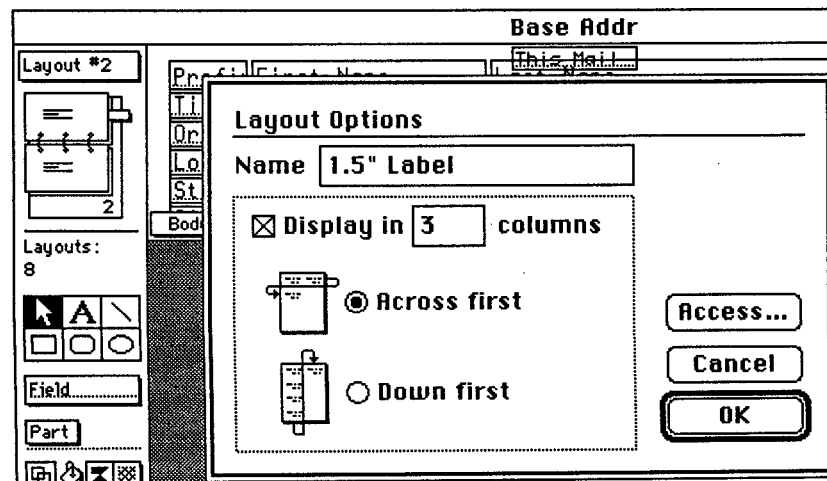
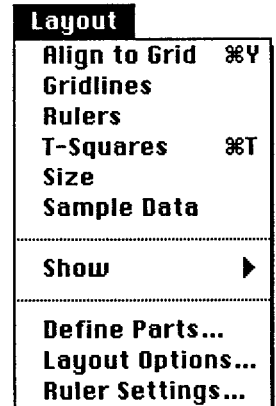
When a new layout is created, you have an opportunity to name it at the same time that you pick the type of layout you desire. (By the way, note in the figure to the left that we now have *six* optional starting layouts.) The default name (shown) can be changed to anything you desire. You can even make it blank (see figure to the right)! Blank layouts show as blank in the pop-up list and in the indicator box. (But the check mark is *not* blank, thank goodness.



I'm determined to think of a good use for a blank layout name. As a security measure? What if I made *all* the layouts blank?)



When an existing file is converted from FileMaker II, Pro provides names for all the old layouts using a numeric sequence, like the figure to the left. You can leave them like that or, better, rename them with functional names (and perhaps delete some no-longer-needed scripts as a result) using the **Layout Options** command from the **Layout** menu. The figure below shows the "Layout #2" name being changed to "1.5" Label".



## More Pro

(continued)

Access control to files and fields and layouts is now much more sophisticated in FileMaker Pro. 'Groups' are defined, passwords are defined and then each can be linked to specific layouts and individual fields. A password specifies a set of accesses and activities allowed. This will provide an additional level of security and control in a multi-user environment.

**Define Passwords for File "Master Orders"**

L950H  
A990C

**Privileges**

- Access the entire file
- Browse records
- Print records
- Edit records
- Create new records
- Delete records
- Override data entry warnings
- Design layouts
- Edit scripts

Password: \_\_\_\_\_

(Leave blank for no password)

Create Access...  
Change Groups...  
Delete Done

It is no doubt going to be great if I can figure out how to manipulate all these access tools and get them to play together. The trouble is that there are three nested interacting dialog boxes and the manual does not say much about how to implement what you would like.

Claris has invented a new user-interface style for this function and I have not yet been able to decode it. It seems simple enough: the program is

trying to tell me to just click on groups, passwords, fields and layouts in order to link them. But it just won't work for me. Either it is not working yet in the version I have or I don't understand it yet.

Another new tool is the size box (shown below). In Layout mode, the size box can be called up and positioned where you like. It is a floating window that remains active as you work, specifying locations on the layout and heights and widths as well. The dimensions do *not* change as you zoom in and out. Once you've opened and placed the size window, it returns each time you select **Layout** mode.

**Define Groups for File "Master Orders"**

Data Entry  
Accounting  
Louise

Access...  
Passwords...  
Create  
Change  
Delete

Group Name: \_\_\_\_\_

Done

**Size**

← →	3.900	in
↑ ↓	1.611	in
← →	5.250	in
↑ ↓	1.986	in
← →	1.350	in
↑ ↓	0.375	in

**FMR**

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# Turning Old Customers Into New

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## Locating Customers Who have not Ordered Recently

By  
S.C. Kim Hunter  
Acropolis Software

Complex  
Find

Basic  
Solution  
Procedure...

...Automated

Self-  
Lookup

□ Some time ago I was asked to modify a FileMaker invoicing file so that customers who hadn't ordered recently could be found, allowing special solicitations for more orders. At the time, I scratched my head a bit then concluded it couldn't be done. The main problem was that the search involved finding *some* records based on the existence, or lack thereof, of other records in the database.

The basic operation is to separate the orders into two groups – older orders and recent orders – then find all customers in the older group who are *not* in the newer group. This is a complex search which can't be done directly with FileMaker's **Find** command. Separating the two groups is easy: **Find** with an order date less than a desired date, say 30 or 60 days ago. The hard part is omitting customers that are in both groups.

Based on a scheme for deleting duplicate records presented in the *Claris Technical Solutions* newsletter (January 1990), I began to see how this could be done with lookups. What is needed in every record in the **Orders** file is a field named **Recent Order Date**. This field could be updated manually every time an order is placed by finding all the records for this customer, entering today's date in the **Recent Order Date** field, then using the **Replace** command (in the **Edit** menu) to fill this date into all of that customer's records. To send letters to stimulate new orders, just **Find** for **Recent Order Date** less than a specified date, like 30 or 60 days ago.

This can be automated by defining an entry option lookup to copy into the **Recent Order Date** field from the **Order Date** field. For reasons to be explained later, it is necessary to use a clone file because of the way FileMaker does lookups. (If you are implementing as you read, make a clone of your order file now and open it to define the lookup.)

A lookup entry option to copy into the **Recent Order Date** field from the **Order Date** field is done by choosing **Define** from the **Select** menu, clicking the **Recent Order Date** field name, then clicking **Entry Options**. The **Entry Options** dialog has a check box labeled **Look up value from another file**. This can fool you; even though it says "another" file you can select the name of the same file currently open. So when FileMaker asks for the name of the lookup file, just choose the name of the clone file you now have open. This kind of lookup is a self-lookup that has been described before in this newsletter.

As shown in the figure on the next page, when picking the fields for the lookup in the clone, specify:

**Copy into: Recent Order Date**

**From: Order Date**

**When what is typed in: Customer ID**

**Matches a value in: Customer ID**

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## Old Customers

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(continued)

The **Customer ID** field has to be whatever field you use to distinctly identify each customer. Some use customer or account numbers, some just the name or the telephone number, others use a calculated name code joining parts of name and address fields.

Setting the lookup to copy into the **Recent Order Date** field from the **Order Date** field might appear no better than just entering the order date manually into the **Recent Order Date** field. Not so. What happens is that FileMaker searches for the first occurrence of **Customer ID** in the file, then copies the **Order Date** from that found record into the **Recent Order Date** of the current record. Sounds OK, but wait a minute: this process means that FileMaker is going to copy from the older (first) order in the file into the most recent order. That's not what I want.

Copy into:  
Recent Order Date

from "Clone of Orders":  
Customer ID  
Order Date  
Recent Order Date

When what is typed in:  
Customer ID  
Order Date  
Recent Order Date

matches a value in:  
Customer ID  
Order Date  
Recent Order Date

If value is not found, then:  
 don't copy  
 copy using next lower value

Switch Lookup File OK Cancel

At first I thought I had a clever quick trick: just sort the original order file on **Order Date** in descending order so that the most recent dates would be first in the file and, thereby, be the first records found in a lookup. Sorry; it doesn't work that way. For lookups, even if a file is sorted, FileMaker

still searches records in the order entered into the file and always finds the first-entered matching record for the lookup. This is because FileMaker searches an index, not the sorted records themselves. Rats!

*Rats!*

Is our scheme doomed? No. The original **Orders** file can be sorted by **Order Date** in descending order, then the **Customer ID** and **Order Date** fields can be output to a text file. The clone can be opened and this data can be input from the text file. This produces an unsorted file with the most recent orders first in the file (and in the index). Now the function of the clone is clear: it provides access *via* lookup to the most recent order for each customer. If your **Orders** file is large with many layouts, you could create a new file instead of using a clone and define three fields: **Customer ID**, **Order Date**, and **Recent Order Date**, then define the lookup as specified previously.

*New File  
Instead  
of Clone*

Caution: Don't define the lookup option for **Recent Order Date** before making the clone. If you did that, the clone will still do the lookup into the original orders file. You would have to do a **Switch Lookup File** which involves repicking the file name and reselecting the lookup fields. It is less likely to cause errors to just establish the lookup in the clone.

In this modified clone, clicking in the **Customer ID** field of any record and choosing **Relookup** from the **Edit** menu will copy the most recent order date for each customer into all the records for that customer. It is important to understand that just one relookup operation will copy all the correct dates into all records in the file. You don't have to repeat the relookup for each customer.



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## Old Customers

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(continued)

*Warning: We are about to update a file. Any time you use **Update existing records** you have to be **very careful** not to wipe out data. Just to be safe, make a duplicate of the original orders file before doing anything else.*

### Update

From the clone file, output only the **Recent Order Date** field to a text file. Make sure you know which folder this file is going into and give it a name distinct from the other text file that was output from the original orders file. You might be tempted to just open the orders file and **Input From** the clone directly. That won't work. Direct input can

only add new records, not update existing ones. Update can only be done from text files.

Go back to the original **Orders** file which should still be sorted by **Order Date** in descending order. Choose

**Input From** on the **File** menu and select the text file that you output from the clone. On the **Input Order** dialog make sure you click the **Update existing records** option and move only **Recent Order Date** to the **Input Order** list. Click **Input**. In order for an update to work, it is vital that the exact same set of records are found and that they are sorted the exact same way.

When the input is done you can do a **Find** for **Recent Order Date** less than some prior date. For example, **Recent Order Date < 1/1/90** will find all customers who ordered before 1990 and who have not ordered since. Notice, by golly, that this is what we were after!

**SQL** is a new data management programming language. SQL is pronounced like the word "sequel" and means "Structured Query Language". SQL is becoming popular for many relational database products. The complex find operation discussed in this article can be performed using SQL with the following SQL query:

```
SELECT CUSTOMER_ID, ORDER_DATE
FROM ORDERS
WHERE ORDER_DATE < 1/1/90
AND CUSTOMER_ID NOT IN
(SELECT CUSTOMER_ID
FROM ORDERS
WHERE ORDER_DATE > 12/31/89)
```

This is a good example of the complexity of relational databases like ORACLE. You have to know exactly how to type a complex sentence like this one to get a SQL data program to work for you. Perhaps it won't be too long before they catch up with FileMaker's point-and-click simplicity. Before I wrote this article I was convinced FileMaker couldn't handle this Find. Now we know how simple it is to do. Expanding FileMaker's capability but keeping it easy to use is a major concern at Claris (and The FileMaker Report) as ongoing FileMaker upgrades are designed.

- S. C. K. Hunter

Summary of the one-time steps to set up the process:

1. In the Orders file define a new field: **Recent Order Date**. (It is assumed you already have an **Order Date** field.)
2. Make sure there is a unique field that identifies each customer, for example, **Customer ID**.
3. Make a clone of the **Orders** file.
4. Modify the clone to lookup the **Recent Order Date**:

Lookup file name: the clone itself

Copy into: **Recent Order Date**

From: **Order Date**

When what is typed in: **Customer ID**

Matches a value in: **Customer ID**

Summary of recurring steps to update the **Recent Order Date** field:

1. Make a duplicate safety backup of the **Orders** file.
2. **Sort** the **Orders** file by **Order Date** in descending order. (Don't forget to click the **Descending Order** button.)
3. **Output** from the **Orders** file to **TextFile1** the two fields **Customer ID** and **Order Date**.

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## Old Customers

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(continued)

4. Open the modified clone and input from **TextFile1**.
5. Click **Customer ID** and choose **Relookup** from the **Edit** menu.
6. **Output** the **Recent Order Date** field from the clone to **TextFile2**.
7. Before closing the clone, delete all records to conserve disk space and to prepare for next time. Alternatively, just make a clone of the clone for later use.
8. In the **Orders** file, input from **TextFile2** to update **Recent Order Date**, making sure to click the **Update existing records** button.
9. **Find** for **Recent Orders Date** < desired date.

While this may look a little complicated on paper, it really is a snap to accomplish once the files are set up. FileMaker's point-and-click simplicity allows even fairly complex operations to be implemented in seconds. And don't forget that you can set up scripts to aid the process - FileMaker even permits input and output operations to be scripted.

### Example

With any new data manipulation scheme, it is a good idea to set up a sample to test the operation of the file. And it is best to try to find the simplest possible example to start with before trying more complex ones. That makes it easier to see if something isn't working correctly. Try out this scheme with two customers, A and B, and three orders to make sure your procedure finds customer B but not customer A:

<i>Customer ID</i>	<i>Order Date</i>
A	12/12/89
B	12/12/89
A	4/4/90

**FMR**

### Editor's note -

Kim's technique in this article is quite valuable for extracting more useful information from existing data. Notice that it is based on a system that uses a single **Orders** file for both orders and customer addresses. If you have your files arranged differently, you may want to consider variations of his approach.

Some order-entry systems use a separate customer address file. When a new order is entered in the **Orders** file, the customer name and address are looked up from the **Customers** file. (If a new customer places an order and is not in the **Customers** file, the name and address are entered manually.) The **Customers** file is then often a convenient place to keep track of other customer-specific information like Kim's **Recent Order Date**.

At the *Diskette Gazette* customers, prospects, inactive and bad records are all kept in the master name and address files. Three dates are maintained with each record: **Name Entry Date**, **Last Mail Date**, and **Last Order Date**. But a similar problem remains concerning updating the **Last Order Date** field and some kind of similar solution needs to be designed.

- J. Kroeger

# Flaws into Features

## New Uses for Repeating Fields

By  
Michael Harris

Mike Harris is President of Watertechnics, a San Francisco Bay Area Macintosh consulting company, specializing in small business applications. He can be reached at 408-423-8927 or write to:  
Watertechnics  
PO Box 2307  
Santa Cruz, CA 95063

Fig 1. Typical fields in an address file formatted with repeating fields.

□ One of the tricks of using any software is to turn peculiarities into advantages. (This process provides a measure of challenge and fun as well.) FileMaker's outstanding weakness is repeating fields: they do not always do proper look ups, won't sort and can't be subsummarized for such things as sales reports by part number. These flaws are due primarily to the fact that, for many purposes, FileMaker can only see the first entry in a set of repeating fields. However, in some instances this problem can become a usable feature.

Enhancing Finds □ Consider an address file illustrated in Figure 1. Some mail list fields can have several possible entries.

- An entry in the **First Name** field might be 'Robert' or 'Bob' or 'B.L.' or 'Buddie'. When doing a **Find** for a particular person, it would be nice if you did not necessarily have to remember which variation was put into the field. Or it might be nice to distinguish among all the 'Robert' entries, to find the one Robert you think of as 'Bob'. This is especially important if the mailing list needs to be formal – if nicknames are inappropriate for letters and labels.
- In address files without a **Company** field, a business name may end up in the **Last Name** field, leaving no good place for the contact name at that company. It would be nice to be able to locate an entry by company name or by contact name when the other one is not remembered.
- **City** name entries are often ambiguous for small towns, which may not be known by their 'official' USPS city names. For instance, in our area Bonny Doone and several other small towns are really "Santa Cruz" to the Post Office. It would be nice to be able to find addresses by these small-town names while at the same time conforming to USPS standards.

First Name	Last Name	Address		
Robert	Hathaway	P.O. Box 2307		
Bob	Watertechnics			
Buddie	The Workbench Report			
B. L.				
City	State	ZIP	Telephone	
Santa Cruz	CA	95063	408 761-5469	
Boony Doone			408 423-8927	
			408 438-2778	

Records: 1

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## Using Flaws

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(continued)

- Telephone numbers are notorious proliferators. It is becoming more common these days for someone in your database to have: a main business number, a car phone, a home phone, a Fax number, and a modem number, or even more.

In all these cases you could, of course, create separate fields to hold each variation. But this generates larger and more complex files just to deal with some exceptional records. In addition, separate fields require separate **Find** requests. If you had a fragment of a phone message, with only a telephone number, it is better to be able to do one **Find** in a **Phone Number** field rather than, say, six finds in six different phone fields.

Use  
Repeating  
Fields

A nice way around these sorts of problems is to create a repeating field where ordinarily you would not. The extra sub-fields can then be used for secondary information, or for keywords to help in **Finds**. All your usual layouts can show this repeating field as a single field. Address labels, for instance, would show only the first value in the **First Name** field. That is why this technique beats simply placing all values in a single field: a non-repeating field with all variations separated by spaces would do the same job of augmenting **Find** requests, but would be much harder to use for ordinary purposes. A special repeating field data entry layout could be used for entering variations and keywords. (see figure 1)

Limitation  
or  
Advantage?

A **Find** is easier when FileMaker searches for a value in a repeating field. It locates all records that have the value you request in *any* of the repeating field positions. The reason is that FileMaker indexes every word in a field and it sees a repeating field as only a specially-formatted ordinary field.

Indexing

An excellent use for this type of repeating field is in reference or article indexing. The first line of the repeating field might contain the title of an article. Repeating 'hidden' lines can then be filled with keywords. For the article you are now reading, for instance, keywords might be 'Lookup', 'Repeating', 'Harris', '29', 'FileMaker Report', 'Flaws' and so forth. Now it is possible to do a **Find** in a field which might be named **Article Title** but the **Find** can be for any word which might otherwise be in an index. When the found record appears – if you are in a layout with the repeating field formatted as a single line – the title of the article will appear in the field rather than the word for which you searched. If the layout were formatted for **View As List**, a group of relevant articles would appear on screen.

This sort of technique can be very elegant. It is also just the sort of thing which, if stated as a problem, most experienced FileMaker users would tell you "FileMaker doesn't do ..."

Mail  
Match  
Codes

Mail list match codes are another case where this trick can be useful. Match codes are calculated fields designed to help find duplicates in address files. A match code typically consists of letters and numbers extracted from different parts of the address. You will see them on all the address labels on your magazine subscriptions. A

## Using Flaws

(continued)

simple match code might take the first three letters of the subscriber's last name and the first five numerals of the ZIP code:

<b>Address</b>	<b>Match code</b>
Sherman Leal 445 Elf Street Diamond Springs, CA 95619	Lea95619

However, when names have several possible spellings, or are prone to spelling errors, match codes can fail. For instance:

<b>Address</b>	<b>Match code</b>
Sherman D'Angelo 445 Elf Street Diamond Springs, CA 95619	D'A95619

Sherman De Angelo 445 Elf Street Diamond Springs, CA 95619	De 95619
--	----------

Sherman Dangelo 445 Elf Street Diamond Springs, CA 95619	Dan95619
--	----------

**Fig 2. Address record with three variations of last name and match code.**

First Name	Last Name	Address	City	State	ZIP	Match Code
Sherman	D'Angelo	445 Elf Street	Diamond Springs	CA	95619	D'A95619
	De Angelo					De 95619
	Dangelo					Dan95619

Since match codes are used to locate duplicate records, all three of these variations could coexist in a mail list, with a subscriber getting three copies of a catalog or periodical.

If we have repeating fields for **Last Name**, **ZIP** and **Match Code** we have the possibility of finding these duplicates if we add possible spelling variations during the

original data entry of each address (see Figure 2). Now a search for match code duplicates will find all three of these records and give us a chance to delete two, keeping the version we prefer. By retaining the variations in the repeating fields, we will be able to find any variation duplicate of this address that might be added in the future. Meanwhile, of course, none of the less desirable versions of the last name will get in the way of the normal use of the address.

### Improving Lookups

Lookups can also benefit from the selective use of repeating fields. One of the most common FileMaker lookups is customer addresses for invoices or sales orders. Figure 3 (next page) shows an Invoice record

## Using Flaws

(continued)

The screenshot shows a window titled "Flaw Invoice" for "WATERTECHNICS". On the left, there is a vertical sidebar with a printer icon and a slider set to "2", with "Records: 4" below it. The main area contains the company name "WATERTECHNICS" and contact information: "Mail: PO Box 2307, Santa Cruz, CA 95063, (408) 423-8927". Below this is a date field "1 6/12/90" and a search field containing "Hathaway". The bottom section displays the address: "P.O. Box 2307, Santa Cruz, CA 95063, 408 761-5469, Santa Cruz, 13.5 .0675".

Fig 3. Typical Invoice file after lookup with 'Hathaway' in Last Name field.

The screenshot shows the same "Flaw Invoice" window for "WATERTECHNICS". The sidebar slider is now set to "3". The search field now contains "Watertechnics". The rest of the window, including the company name and address, remains the same as in Figure 3.

Fig 4. Same file after entering 'Watertechnics'.

The screenshot shows the same "Flaw Invoice" window for "WATERTECHNICS". The sidebar slider is now set to "4". The search field now contains "The Workbench Report". The rest of the window, including the company name and address, remains the same as in Figure 3.

Fig 5. Same file after entering 'The Workbench Report'.

which can look up addresses based on customer last name. The lookup takes information from a Customer Address file like that in Figure 1.

The address in Figure 3 was looked up after entry of "Hathaway" in the **Last Name** field. However, since the **Customer Address** file has a repeating **Last Name** field, either "Watertechnics" or "The Workbench Report" will also look up the same name and address. This is demonstrated in Figures 4 and 5.

You will notice that only the first phone number is looked up, regardless of which line of the repeating set the **Last Name** value is. This is the lookup 'flaw' mentioned at the outset. This technique for lookups is a "many-to-one" process. Any match in the repeating fields grabs the information from single fields or from the first item of a repeating set.

In our consulting business we recently used this technique to create an inventory file for an antique business. Since each item in inventory is unique, no counting was required. It was just a question of whether an item had been sold or not.

The store's **Invoice** file was typical: repeating fields were used to list items sold on each invoice. We created a separate **Inventory** file and made sure every item had a unique item code, and that the code was used when invoices were created.

The **Inventory** file was then updated periodically with the **Relookup** function: if the item code in the **Inventory** file matched an item code in the **Invoice** file – at any position in the repeating field – the **Invoice Number** was looked up into that inventory record. So, sold inventory items became those with some value in the **Invoice Number** field after the lookup; unsold items are those with blank **Invoice Number** values. We

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## Using Flaws

(continued)

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were then able to use the **Inventory** file to do all manner of reports on inventory status.

Later we also looked up customer name and sales date along with invoice date and so could do reports from the Inventory file of items sold to each customer. The antique store found these reports very valuable for directing notices of new pieces to the customers most likely to be interested.

### Humanizing Computers

One of the difficulties with computers is their inability to deal with ambiguity, to make good judgements about whether two similar things are the same or different. Our familiarity with the real world and the many different ways things can screw up makes us a necessary accessory to the machine. Adding some clues to our perverse variabilities in Filemaker repeating fields helps shift some of this judgement burden back onto the computer. Do you suppose this technique qualifies as "artificial intelligence"?

**FMR**

#### Four records created from one for new lookup file.

First Name	Last Name	Address
Robert	Hathaway	P.O. Box 2307

First Name	Last Name	Address
Bob	Watertechnics	

First Name	Last Name	Address
Buddie	The Workbench Report	

First Name	Last Name	Address
B.L.		

For our antique store we were not able to look up the sales price for sold items because the prices were also in repeating fields, not single fields like the **Invoice Number**. If you need correct lookups from repeating field sets to repeating field sets, it is necessary to create a duplicate file, without repeating fields, to be used as the lookup source file. This is done by "splitting" records as they are entered into the new file. The figure shows how the information in Figure 2 would appear as multiple records in the new file. Since the split records only have values in the first lines of fields, the lookups work.

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